

Appendix A

COPY OF CLAIMS SHOWING AMENDMENTS

(Deletions are shown by ~~striketrough~~ and additions are underlined)

13. (Amended) A bio-assay array test system, comprising:

(1) a test fixture comprising:

(a) a bio-assay device comprising a plurality of multiple-port signal paths, each multiple-port signal path having at least one signal input port and one signal output port, the multiple-port signal path operable to support the propagation of a test signal at one or more frequencies from 10 MHz to 1000 GHz and comprising:

(i) a transmission line connected between the at least one signal input port and the at least one signal output port;

(ii) a ground element; and

(iii) a dielectric substrate attached between the transmission line and ground element; and

(b) a plurality of sample cavities, each of said sample cavities configured to retain a volume of sample adjacent to at least one of said plurality of multiple-port signal paths, whereby an input test signal propagating along the at least one multiple-port signal path is electromagnetically coupled to the adjacently located sample;

(2) a measurement system having an output connected to the at least one signal input port of the multiple-port signal path and an input connected to the at least one signal output port of the multiple-port signal path, the measurement system configured to transmit, at one or more predefined frequencies, the input test signals to one or more of the plurality of multiple-port signal paths and to receive a modulated test signals from one or more of the plurality of multiple-port signal paths; and

(3) a computer connected to the measurement system and configured to control the measurement system's transmission of the input test signal and reception of the modulated test signal.

36. (Amended) The bio-assay array test system of claim ~~35~~ 13, wherein the at least a portion of the signal path comprises a coplanar waveguide transmission line structure.

37. (Amended) The bio-assay array test system of claim ~~35~~ 13, wherein the at least a portion of the signal path comprises a microstrip transmission line structure.

38. (Amended) The bio-assay array test system of claim ~~35~~ 13, wherein the at least a portion of the signal path comprises a coaxial transmission line structure.

39. (Amended) The bio-assay array test system of claim ~~35~~ 13, wherein the at least a portion of the signal path comprises a slotline structure.

46. (Amended) The bio-assay array test system of claim ~~35~~ 13, wherein the molecular binding region comprises a drug receptor.

47. (Amended) The bio-assay array test system of claim ~~35~~ 13, wherein the molecular binding region comprises one or more cells.